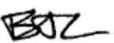


MEMORANDUM

To: Nova Heaton, PE, City of Arlington

From: Brad Lincoln, PE 

Subject: Zahradnik Traffic Scoping Analysis

Date: March 4, 2022

Project: 090221216

Kimley-Horn and Associates, Inc. has been retained to provide analysis regarding the trip generation, trip distribution, parking, and mitigation fees for the proposed Zahradnik development. The development is located in the northwest corner of SR-531 at SR-9. A site vicinity map is included in Figure 1. The Zahradnik development is proposed to be a mixed-use development with the following uses:

- 23 townhouse style units
- 311 multifamily units
- 51,500 square-foot (SF) of retail space

Brad Lincoln, responsible for this memorandum, is a licensed professional engineer (Civil) in the State of Washington and member of the Washington State section of ITE.

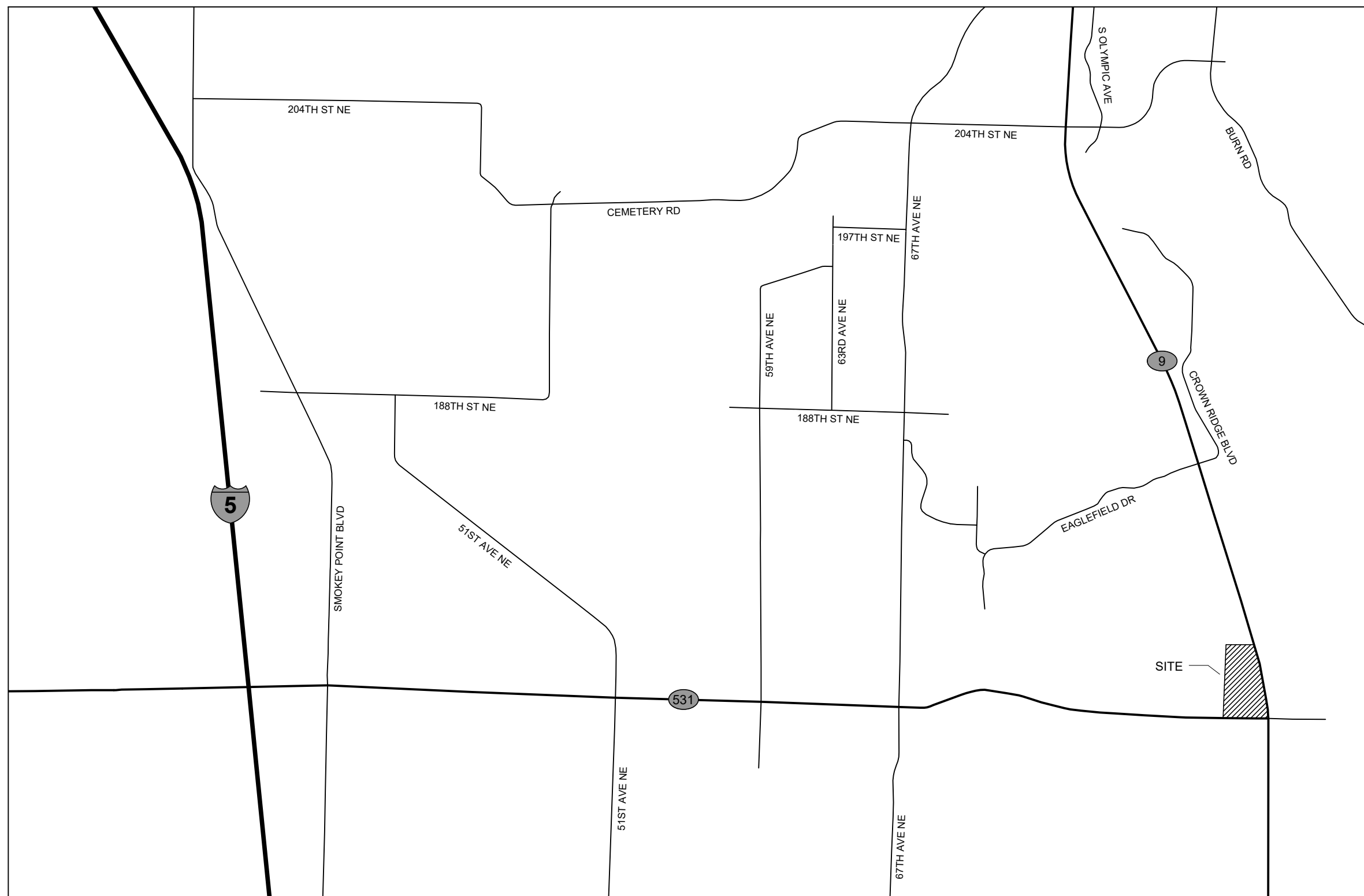
TRIP GENERATION

The trip generation calculations for the Zahradnik development are based on data published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual, 11th Edition (2021)*. The average trip generation rates for the following ITE Land Use Codes have been used for the trip generation calculations:

- 23 townhouse style units – ITE Land Use Code 215, Single-Family Attached Housing
- 311 multifamily units – ITE Land Use Code 220, Multifamily Housing (Low-Rise)
- 51,500 SF retail space – ITE Land Use Code 821, Shopping Center Plaza (40-150k)

Internal crossover reductions have been applied to the trip generation calculations to account for trips between the residential and commercial uses on the site. These trips do not impact the surrounding roadways. The internal crossover reductions have been calculated using the NCHRP 684 Trip Capture Estimation Tool¹. The internal crossover reduction was calculated to be 22%. This percentage has been applied to the daily and peak-hour trip generation. Additionally, ITE publishes pass-by data for ITE Land Use Code 821. This rate accounts for vehicles currently on the adjacent roadways that will utilize the site. These trips are not new trips to the adjacent roadways. The pass-by rate for ITE Land Use Code 821 is 40%. This pass-by rate has been applied to the daily and peak-hour trip generation calculations. The trip generation of the Zahradnik development is summarized in Table 1.

¹ *Trip Generation Handbook (3rd Edition)*, Institute of Transportation Engineers (ITE), September 2017



ZAHRADNIK
SITE VICINITY MAP

Table 1: Attached Residential Scenario Trip Generation Summary - Weekday

Land Use	Units/Size	Average Daily Trips	AM Peak-Hour Trips			PM Peak-Hour Trips		
			In	Out	Total	In	Out	Total
Attached Units ITE LUC 215	23 units	166	3	8	11	7	6	13
Multifamily Units ITE LUC 220	311 units	2,096	30	94	124	100	59	159
Retail Use ITE LUC 821	51,500 SF	3,477	55	34	89	131	136	267
Internal Crossover Reduction	---	-1,263	-20	-29	-49	-52	-45	-97
Pass-By Reduction	---	-1,085	-17	-11	-28	-41	-42	-83
TOTAL		3,391	51	96	147	145	114	259

The Zahradnik development is anticipated to generate 3,391 new average daily trips with 147 new AM peak-hour trips and 259 new PM peak-hour trips. The trip generation calculations are included in the attachments.

TRIP DISTRIBUTION

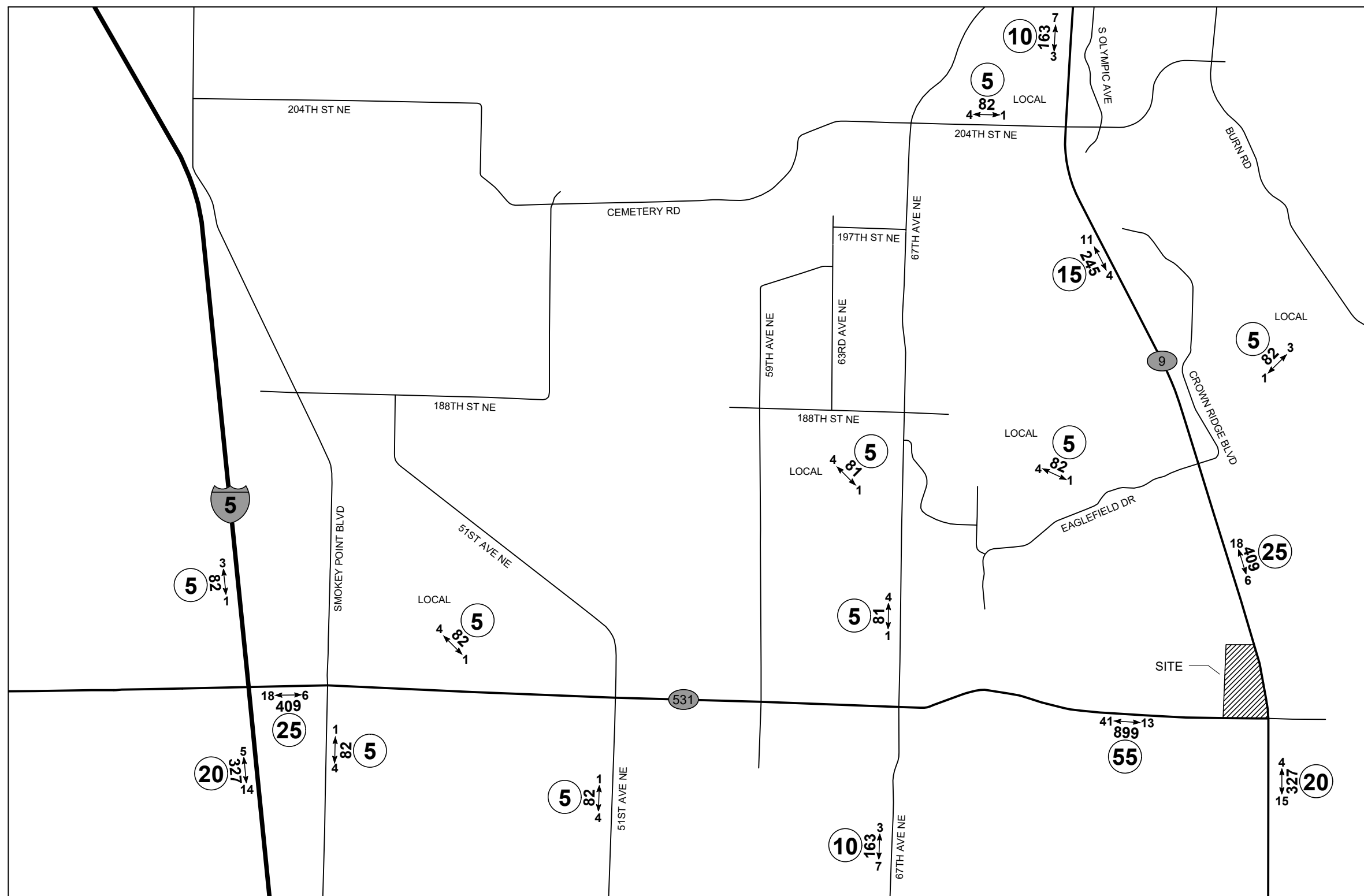
The trip distribution for the Zahradnik development is based on surrounding land uses and approved distributions for similar developments in the site vicinity. It is anticipated that 45% of the trips generated by the development will travel along SR-9, twenty-five percent to and from the north and twenty percent to and from the south. It is estimated that 40% of the trips generated by the development will travel to and from the west along 172nd Street NE/SR-531. The remaining 15% of the trips generated by the development will travel along 67th Avenue NE, five percent to and from the north and ten percent to and from the south. Detailed trip distribution for the AM and PM peak-hours are shown in Figure 2 and Figure 3, respectively.

IMPACTS TO SURROUNDING INTERSECTIONS

The typical City of Arlington threshold for requiring analysis of impacts is typically 10 PM peak-hour trips. The intersections that are anticipated to analyzed as part of this report are:

1. SR-9 at 172nd Street NE/SR-531
2. 85th Avenue NE at 172nd Street NE/SR-531
3. 67th Avenue NE at 172nd Street NE/SR-531
4. 59th Avenue NE at 172nd Street NE/SR-531
5. 51st Avenue NE at 172nd Street NE/SR-531
6. 43rd Avenue NE at 172nd Street NE/SR-531
7. Smokey Point Boulevard at 172nd Street NE/SR-531

The analysis is anticipated to be completed for the weekday PM peak-hour.



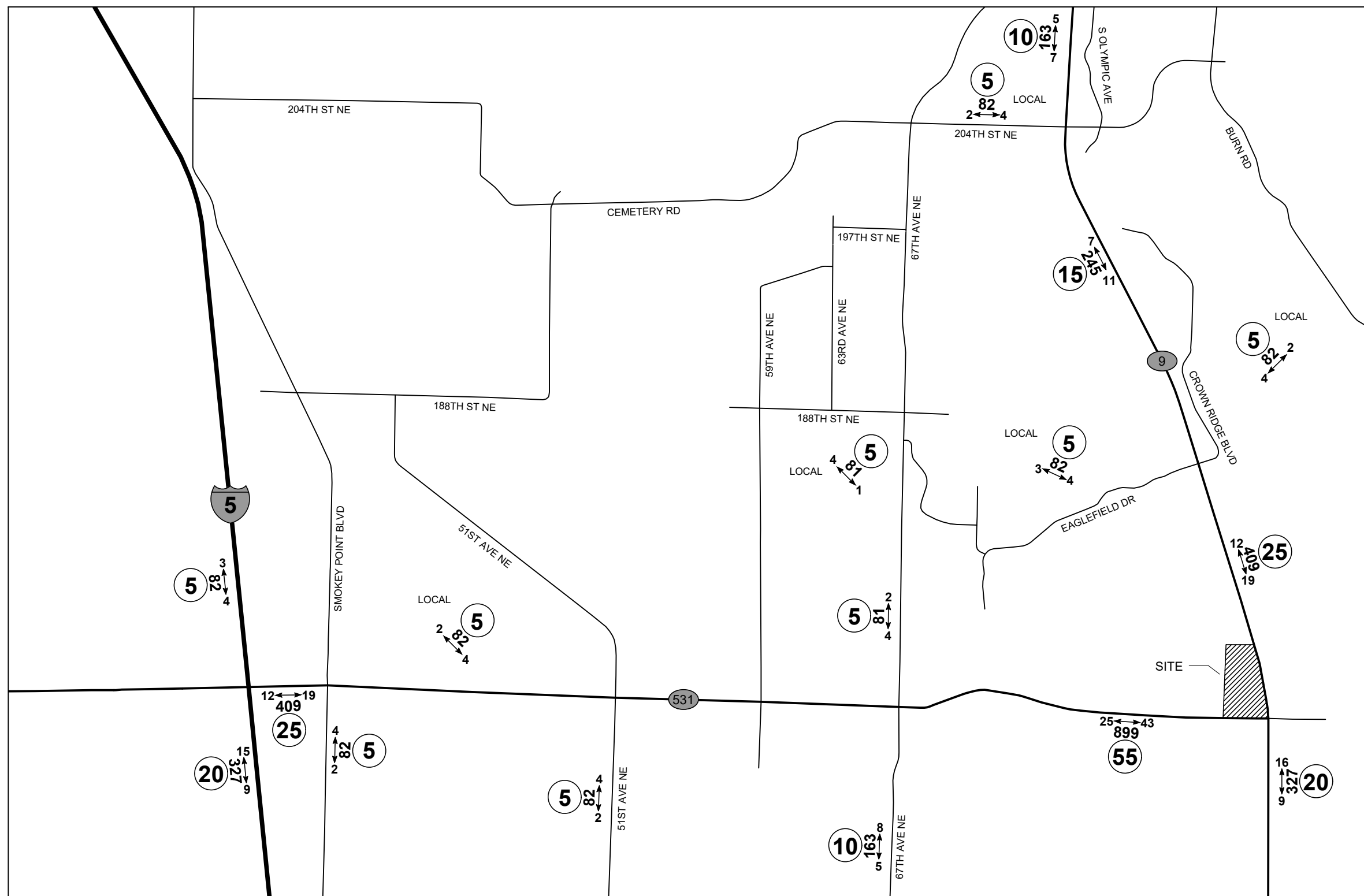
LEGEND:

← XXX AM PEAK-HOUR TRIPS

PERCENTAGE OF TRIPS

X,XXX
XX ↔ XX NEW DAILY TRIPS
AM PEAK-HOUR TRIPS

FIGURE 2
—Kimley»Horn © 2022



LEGEND:

← XXX AM PEAK-HOUR TRIPS

PERCENTAGE OF TRIPS

X,XXX
XX←→XX NEW DAILY TIRPS
 AM PEAK-HOUR TRIPS

ZAHRADNIK DEVELOPMENT TRIP DISTRIBUTION - PM PEAK-HOUR

PARKING ANALYSIS

The Zahradnik development is proposed to consist of 536 parking spaces. The types of spaces are:

- Full Size – 434
- Compact – 42
- ADA – 16
- Townhouse Garage/Apron – 46

The site is proposed to consist of 334 total residential units. The City of Arlington has instituted a requirement of 1.25 spaces per unit. This results in a parking demand of 418 spaces for the residential units. The City of Arlington has a parking supply rate of 1 space per 400 feet of retail area. The parking supply for the 51,500 SF of retail space is 129 spaces. The total supply for the site would be 547 spaces. This is 11 spaces more than what is proposed on the site, but does not account for the high proportion of studio/1-Bedroom units or any shared parking between the residential and commercial uses.

The parking demand for the residential units was also evaluated using ITE data for the number of units and the number of bedrooms. ITE publishes an average peak period parking rate of 1.21 spaces per unit for multifamily units. This would result in the 334 residential units having a parking demand of 404 parking spaces. ITE publishes an average peak-period parking demand rate of 0.66 spaces per bedroom. The residential units are anticipated to have a mix of studio/1-bedroom, 2-bedroom, and 3-bedroom units. The unit count, assuming each of the townhouse units has 3 bedrooms, is:

- Studio/1-Bedroom Units – 266
- 2-Bedroom Units – 42
- 3-Bedroom Units – 26

The 334 residential units are anticipated to have 428 total bedrooms. The residential units are therefore anticipated to have a parking demand of 282 parking spaces using the ITE data per bedroom.

The use of the ITE data based on either the 334 units, 404 parking spaces for the residential use, or the 428 bedrooms, 282 parking spaces for the residential use, would result in a total parking supply of between 411 and 533 parking spaces, based on the retail use having a demand of 129 spaces.

The City of Arlington parking supply rates with a minor reduction for shared parking and the ITE residential parking rate show that the proposed demand of 536 parking spaces should adequately serve the proposed uses.

TRAFFIC MITIGATION FEES

The City of Arlington has an interlocal agreement with Snohomish County that provides for the payment of traffic mitigation fees to Snohomish County for City of Arlington developments. The City of Arlington also has an understanding with WSDOT for the payment of traffic mitigation fees.

CITY OF ARLINGTON

The City of Arlington traffic mitigation fees have been calculated using the rate of \$3,355 per PM peak-hour trip. The anticipated fees for the proposed uses are:

1. 23 Attached Residential Units (10 new PM Peak-Hour Trips) - \$33,550.00 (\$1,458.70 per unit)
2. 311 Multifamily Residential Units (124 PM Peak-Hour Trips) - \$416,020.00 (\$1,337.68 per unit)
3. 51,500 SF Retail (125 PM Peak-Hour Trips) - \$419,375.00 (\$8,143.20 per 1,000 square-feet)

It is important to note that City of Arlington traffic mitigation fees do not vest to the time of application. It is possible that the City of Arlington mitigation fees will increase between the time of this report and when the traffic mitigation fees are required to be paid.

SNOHOMISH COUNTY

The City of Arlington and Snohomish County have an interlocal agreement that provides for the payment of traffic mitigation for impacts to Snohomish County roadways by City of Arlington developments. Traffic mitigation fees are based on predetermined area impacts or impacts to actual improvement projects. According to Section 3(a)2 of the *Snohomish County Traffic Worksheet and Traffic Study Requirements for Developments in the City of Arlington*, City of Arlington developments are only required to pay traffic mitigation fees for improvements in the Transportation Needs Report impacted with three directional peak-hour trips. The only Snohomish County project that is anticipated to be impacted by three directional peak-hour trips is 152nd Street NE at 67th Avenue NE. The intersection is anticipated to be impacted by 163 daily trips. The current Snohomish County fee for developments in the City of Arlington is \$185 per daily trip for residential developments and \$157 per daily trip for commercial developments. The impacts and fees to the intersection of 152nd Street NE at 67th Avenue NE are:

- Residential trips (52% of daily trips) – 85 ADT, \$15,725.00
- Commercial trips (48% of daily trips) – 78 ADT, \$12,146.00

The total traffic mitigation fees to Snohomish County for the Zahradnik development should be \$27,971.00.

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

There are no current WSDOT improvement projects listed on the WSDOT Exhibit C List that are impacted by trips generated by the Zahradnik development that are not currently identified as funded under the Connecting Washington legislation. WSDOT traffic mitigation fees are therefore not be anticipated for the Zahradnik development.

CONCLUSIONS

The Zahradnik development is proposed to consist of 23 attached townhouse units, 311 multifamily residential units, and 51,500 SF of retail space. The development is anticipated to generate 3,391 average daily trips with 147 AM peak-hour trips and 259 PM peak-hour trips. The total traffic mitigation fees to the City of Arlington for the development are anticipated to be \$868,945.00. The Snohomish County fees are anticipated to total \$27,971.00. WSDOT traffic mitigation fees should not be required for the Zahradnik development.

Attachments

Zahradnik
090221216

Trip Generation for: Weekday
(a.k.a.): Average Weekday Daily Trips (AWDT)

NET EXTERNAL TRIPS BY TYPE														
					IN BOTH DIRECTIONS					DIRECTIONAL ASSIGNMENTS				
					TOTAL	PASS-BY		DIVERGED LINK		NEW	PASS-BY		DIVERGED LINK	
LAND USES	VARIABLE	ITE LU code	Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	% of Gross Trips	Trips In+Out (Total)	In+Out (Total)	% of Ext. Trips	In+Out (Total)	In	Out
Single-Family Attached Housing	23 units	215	7.20	50%	50%	166	22%	22%	37	129	0%	129	0	0
Multifamily Housing (Low-Rise)	311 units	220	6.74	50%	50%	2096	22%	22%	461	1635	0%	1635	0	0
Shopping Center Plaza (40-150k)	51.500 ksf	821	67.52	50%	50%	3477	22%	22%	765	2712	40%	1085	543	542
Totals						5739			1263	4476		3391	1697	1694

Zahradnik
090221216

Trip Generation for: Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 7 and 9 AM
(a.k.a.): Weekday AM Peak Hour

NET EXTERNAL TRIPS BY TYPE																				
IN BOTH DIRECTIONS											DIRECTIONAL ASSIGNMENTS									
			Gross Trips				Internal Crossover		TOTAL	PASS-BY		DIVERTED LINK		NEW	PASS-BY		DIVERTED LINK		NEW	
LAND USES	VARIABLE	ITE LU code	Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	Trips In+Out (Total)	In+Out (Total)	% of Ext. Trips	In+Out (Total)	% of Ext. Trips	In+Out (Total)	In+Out ('Total)	In	Out	In	Out	In	Out
Single-Family Attached Housing	23 units	215	0.48	31%	69%	11	22%	2	9	0%	0	0%	0	9	0	0	0	0	3	6
Multifamily Housing (Low-Rise)	311 units	220	0.40	24%	76%	124	22%	27	97	0%	0	0%	0	97	0	0	0	0	23	74
Shopping Center Plaza (40-150k)	51,500 ksf	821	1.73	62%	38%	89	22%	20	69	40%	28	0%	0	41	17	11	0	0	25	16
Totals						224		49	175		28		0	147	17	11	0	0	51	96

Zahradnik
090221216

Trip Generation for: Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 4 and 6 PM
(a.k.a.): Weekday PM Peak Hour

NET EXTERNAL TRIPS BY TYPE														
IN BOTH DIRECTIONS					DIRECTIONAL ASSIGNMENTS									
LAND USES	VARIABLE	ITE LU code	Gross Trips			Internal Crossover		TOTAL	PASS-BY		DIVERGED LINK		NEW	
			Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips		% of Ext. Trips	In+Out (Total)	% of Ext. Trips	In+Out (Total)	In+Out (Total)	NEW
Single-Family Attached Housing	23 units	215	0.57	57%	43%	13	22%	3	0%	0	0%	0	0	4
Multifamily Housing (Low-Rise)	311 units	220	0.51	63%	37%	159	22%	35	0%	0	0%	0	0	46
Shopping Center Plaza (40-150k)	51.500 ksf	821	5.19	49%	51%	267	22%	59	40%	83	0%	0	41	64
Totals						439		97		83		0	41	114